REMARKS

In response to the Office Action of May 15, 2008, Applicants have amended the claims, which when considered with the following remarks, is deemed to place the present application in condition for allowance. Favorable consideration and allowance of all pending claims is respectfully requested. The amendments to the claims are non-narrowing amendments and have been made in the interest of expediting prosecution of this case. Applicants reserve the right to prosecute the same or similar subject matter in this or another application.

Claims 1-35 are pending in this application. By this Amendment, Claims 1, 2, 21 and 22 has have been amended and new Claims 36-40 have been added. Claims 1 and 21 have been amended to correct perceived errors. Claims 2 and 22 have been amended to further define the invention by reciting that the ethylene and C_3 - C_{10} alpha-monoolefin are copolymerized with at least one polyene monomer selected from the group consisting of nonconjugated dienes and nonconjugated trienes to provide a terpolymer. Support for this amendment can be found on page 6, line 7 through page 9, line 2. New Claims 36-40 have been added to define another embodiment of the invention, i.e., a method for improving the drain interval of a diesel engine oil. Support for new Claims 36-40 can be found throughout the specification, e.g., page 2, lines 20-23, page 5, lines 6-13, and in the working examples. Applicants respectfully submit that no new matter has been added to this application. Moreover, it is believed that the claims as presented herein place the application in condition for allowance.

The Examiner has rejected Claims 1-15 and 17-35 under 35 U.S.C. §103(a) as being obvious over Esche, Jr. et al. U.S. Publication No. 2004/0014612 ("Esche, Jr. et al.") in view of Migdal et al. U.S. Patent No. 5,075,383 ("Migdal et al.").

As acknowledged by the Examiner, nowhere does Esche, Jr. et al. disclose or suggest a diesel fuel composition comprising, *inter alia*, "an effective amount of a soot dispersant additive which is a copolymer of ethylene and a C_3 - C_{10} alpha-monoolefin having a number average molecular weight ranging from about 5,500 to about 60,000 on which has been grafted an ethylenically unsaturated carboxylic acid and/or anhydride thereof in the ratio of at least about 1.8 molecules of a carboxylic acid function per molecule of said copolymer which is then further derivatized with at least one amino-aromatic polyamine compound selected from the group consisting of: (a) N-arylphenylenediamine ... (b) aminocarbazole ... (c) aminoindole ... (d) amino-indazolinone ... and (e) aminoperimidine" as generally recited in amended Claim 1.

Nor, as also acknowledged by the Examiner, does Esche, Jr. et al. disclose or suggest a method for improving the soot dispersancy in the cranckcase lubricating oil during engine operation of a diesel engine which comprises operating the diesel engine with a fuel composition comprising, *inter alia*, "an effective amount of a soot dispersant additive which is a copolymer of ethylene and a C_3 - C_{10} alpha-monoolefin having a number average molecular weight ranging from about 5,500 to about 60,000 on which has been grafted an ethylenically unsaturated carboxylic acid and/or anhydride thereof in the ratio of at least about 1.8 molecules of a carboxylic acid function per molecule of said copolymer which is then further derivatized with at least one amino-aromatic polyamine compound selected from the group consisting of: (a) N-arylphenylenediamine ... (b) aminocarbazole ... (c) aminoindole ... (d) amino-indazolinone ... and (e) aminoperimidine" as generally recited in amended Claim 21.

Rather, Esche, Jr. et al. disclose a hybridized, acylated olefin copolymer for use as a multi-functional fuel and lubricant additive which is obtained from the reaction product of (a) an

acylated olefin copolymer, and (b) a polythiol amine such as an aminomercaptotriazole as a coupling compound. Esche, Jr. et al. further disclose that the hybridized olefin copolymer products disclosed therein are used by incorporation and dissolution into an oleaginous material such as fuels and lubricating oils. Esche, Jr. et al. go on to state that the liquid petroleum fuels are middle distillates including kerosene, diesel fuels, home heating fuel oil, jet fuels, etc.

With respect to new Claim 36, nowhere does Esche, Jr. et al. disclose or suggest a method for improving the drain interval of a diesel engine oil comprising supplying to the diesel engine a diesel fuel composition comprising, *inter alia*, "an effective amount of a soot dispersant additive which is a copolymer of ethylene and a C_3 - C_{10} alpha-monoolefin having a number average molecular weight ranging from about 5,500 to about 60,000 on which has been grafted an ethylenically unsaturated carboxylic acid and/or anhydride thereof in the ratio of at least about 1.8 molecules of a carboxylic acid function per molecule of said copolymer which is then further derivatized with at least one amino-aromatic polyamine compound selected from the group consisting of: (a) N-arylphenylenediamine ... (b) aminocarbazole ... (c) aminoindole ... (d) amino-indazolinone ... and (e) aminoperimidine" as generally recited in new Claim 36.

Rather, as discussed above, Esche, Jr. et al. merely disclose a hybridized, acylated olefin copolymer for use as a multi-functional fuel and lubricant additive which is obtained from the reaction product of (a) an acylated olefin copolymer, and (b) a polythiol amine such as an aminomercaptotriazole as a coupling compound. Esche, Jr. et al. has no appreciation that the drain interval of a diesel engine oil can be extended by adding the specifically recited soot dispersant additive to a diesel fuel composition.

Migdal et al. do not cure the foregoing deficiencies of Esche et al. In contrast to the presently claimed invention, Migdal et al. disclose the use of the soot dispersant additive therein in a lubricating oil composition and a fuel composition. In fact, the primary goal of Migdal et al. is to provide a lubricating oil composition containing the soot dispersant additive disclosed therein. According to the Examiner, "the mere fact that Migdal teaches that the additive of his invention has dispersancy properties and may be used in a fuel composition is evidence that one skilled in the art would have been led to, and not discouraged from, testing the additive in various fuel compositions through routine experimentation to determine in which fuels the additive would perform its attendant function."

However, one skilled in the art would readily understand that a diesel engine and a gasoline engine are totally different and that fuel additives in a fuel composition could behave differently when employed in the respective engine. For example, the inherent nature of diesel engine operation raises several technical hurdles in order for the soot dispersant additive to reach the diesel lubricant in the engine. In order to become incorporated into the lubricant, the soot dispersant additive present in the fuel must pass through the combustion chamber with its chemical integrity intact and accumulate in the crankcase where it can then replenish the soot dispersant additive that has been consumed. The exposure of a diesel engine's cylinder to diesel fuel prior to combustion is very short relative to those timeframes encountered in gasoline engines. As such, it is not possible to predict whether any given diesel fuel additive will pass through the combustion chamber with its chemical integrity intact. Therefore, diesel fuel additive candidates must possess a different set of physical and chemical qualities to reach the oil

coated cylinder surfaces than those requires in gasoline engine applications. For this reason, the more typical approach was to add the additive directly to the diesel engine lubricant.

Applicants, however, have surprisingly discovered that the presently recited soot dispersant additive when added to diesel fuel has been found to reach the cylinder lining of a diesel engine prior to fuel combustion and from there to enter the crankcase where they continuously replenish the lubricant's soot dispersing capability as its original dispersant additive is consumed. This replenishment capability results in the lubricant maintaining its viscometric characteristics over a longer drain interval than would be the case were no soot dispersant additive incorporated into the fuel. In addition to the longer lubricant drain intervals mentioned, operation of a diesel engine with the claimed soot dispersant additive-containing diesel fuel has resulted in an unexpected and significant increase in fuel economy which is yet another benefit of employing the claimed diesel fuel composition in the operation of a diesel engine. Nothing in Migdal et al. provide any appreciation of this benefit. As such, nothing in Migdal et al. would lead one skilled in the art to modify the additive of Esche, Jr. et al. by looking to the disclosure of Migdal et al. and arrive at the presently claimed invention with any expectation of success. Accordingly, Claims 1-15 and 17-35 and new Claims 36-40 are believed to be nonobvious, and therefore patentable, over the combination of Esche, Jr. et al. and Migdal et al. Therefore, withdrawal of the rejection is respectfully requested.

The Examiner has rejected Claims 1-15 under 35 U.S.C. §103(a) as being unpatentable over Migdal et al.

As acknowledged by the Examiner, nowhere in Migdal et al. is there any disclosure or suggestion of the diesel fuel composition containing the specifically recited soot dispersant

additive of amended Claim 1. In contrast to the presently claimed invention, Migdal et al. disclose the use of the soot dispersant additive therein in a lubricating oil composition and a fuel composition. In fact, the primary goal of Migdal et al. is to provide a lubricating oil composition containing the soot additive dispersant disclosed therein. According to the Examiner, "the mere fact that Migdal teaches that the additive of his invention has dispersancy properties and may be used in a fuel composition is evidence that one skilled in the art would have been led to, and not discouraged from, testing the additive in various fuel compositions through routine experimentation to determine in which fuels the additive would perform its attendant function."

However, as discussed above, one skilled in the art would understand that a diesel engine and a gasoline engine are totally different and that fuel additives in a fuel composition could behave different when employed in the respective engine. The inherent nature of diesel engine operation raises several technical hurdles in order for the soot dispersant additive to reach the diesel lubricant in the engine. In order to become incorporated into the lubricant, the soot dispersant additive present in the fuel must pass through the combustion chamber with its chemical integrity intact and accumulate in the crankcase where it can then replenish the soot dispersant additive that has been consumed. The exposure of a diesel engine's cylinder to diesel fuel prior to combustion is very short relative to those timeframes encountered in gasoline engines. As such, it is not possible to predict whether any given diesel fuel additive will pass through the combustion chamber with its chemical integrity intact. Therefore, diesel fuel additive candidates must possess a different set of physical and chemical qualities to reach the oil coated cylinder surfaces than those requires in gasoline engine applications. For this reason, the

more typical approach was to add the additive directly to the diesel engine lubricant, as disclosed in Migdal et al.

Applicants, however, have surprisingly discovered that the presently recited soot dispersant additive when added to diesel fuel has been found to reach the cylinder lining of a diesel engine prior to fuel combustion and from there to enter the crankcase where they continuously replenish the lubricant's soot dispersing capability as its original dispersant additive is consumed. This replenishment capability results in the lubricant maintaining its viscometric characteristics over a longer drain interval than would be the case were no soot dispersant additive incorporated into the fuel. In addition to the longer lubricant drain intervals mentioned, operation of a diesel engine with the recited soot dispersant additive-containing diesel fuel has resulted in an unexpected and significant increase in fuel economy which is yet another benefit of employing the claimed diesel fuel composition in the operation of a diesel engine. Certainly, nothing in Migdal et al. provide any appreciation of this benefit. As such, amended Claims 1-15 are believed to be nonobvious, and therefore patentable, over Migdal et al. Therefore, withdrawal of the rejection is respectfully requested.

New Claims 36-40 are believed to be nonobvious over Migdal et al. for at least the reasons set forth above. Accordingly, an indication that new Claims 36-40 are allowable is respectfully requested.

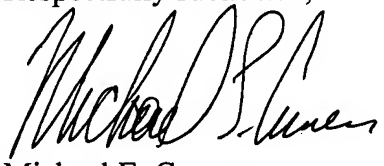
The Examiner has rejected Claim 16 under 35 U.S.C. §103(a), as being obvious over Migdal et al. in view of DeCanio U.S. Patent No. 5,925,151 ("DeCanio").

The foregoing deficiencies of Migdal et al. discussed above with respect to the rejection of Claim 1, from which Claim 16 ultimately depends apply with equal force to this rejection.

DeCanio does not cure and is not cited as curing the above-noted deficiencies of Migdal et al. Specifically, Decanio nowhere provides any disclosure or suggestion of the specifically recited soot dispersant additive in a diesel fuel composition of amended Claim 1. Rather, DeCanio is merely cited for the disclosure that a diesel fuel may be a low sulfur diesel fuel. Accordingly, Claim 16 is believed to be nonobvious, and therefore patentable, over Migdal et al. and DeCanio for at least the same reasons above, no matter how these references are considered.

For the foregoing reasons, Claims 1-35 and new Claims 36-40 as presented herein are believed to be in condition for allowance. Such early and favorable action is earnestly solicited.

Respectfully submitted,



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